

COMP/MATH 448: CONCRETE MATHEMATICS

Prerequisites: Math 102 or Comp 182

Text: *Concrete Mathematics (Second Edition)*
by Graham, Knuth, and Patashnik

Syllabus: Chapters 1,2, 4-8, 9 (if time permits)

Goals

- To learn as much as possible from this excellent book
- To develop a *joy* in accomplishing prodigious mathematical feats
- To write original papers on pedagogy and research (optional)

This course is definitely NOT concerned with memorizing formulas, but rather with acquiring exciting techniques for approaching and solving problems associated to recursion, summation, and elementary number theory. Emphasis will be on the relationship between continuous mathematics (calculus) and discrete mathematics.

Topics

- Recursion
- Sums and Differences
- Elementary Number Theory
- Combinatorics
- Special Numbers (Sterling, Bernoulli, Fibonacci, Harmonic,...)
- Generating Functions
- Discrete Probability